OSNOVNI PODACI:

	Šifra	Sadržaj
Organizaciona jedinica	01.07.300.	Fakultet informacionih tehnologija
Skraćenica	**FIT-CIT**	
Katedra	01.06.040.	Katedra za softverski inženjering i vještačku inteligenciju
Predmet/modul	1.02.01.01.003.	**Mobile computing**
Širi/dopunski naziv		

VRSTA PREDMETA:

Funkcionalna oblast	stručno jezgro
Nivo apstrakcije	Aplikativni
Težinski faktor	viši-srednji

MATIČNOST PREDMETA:

	Šifra	Sadržaj
Naučna oblast	1.02.01.01.003.	Prirodne nauke
Naučno polje	1.02.01.01.003.	Računarstvo i informatika
Uža naučna oblast	1.02.01.01.003.	Računarske nauke
Naučna podoblast	1.02.01.01.003.	Procesno računarstvo
Naučna disciplina	1.02.01.01.003.	Mobilno računarstvo

OPIS PREDMETA:

Educational and professional goals:	The aim of the course is to introduce the student to the field of modern mobile computing and mobile networks, and to deal with the specifics of the working conditions of mobile applications and the prerequisites that are necessary for their quality execution. Within this subject, students acquire basic knowledge about mobile networks, mobile network architectures and types of networks, services provided to users, the way these services function, and ways to create services on mobile devices. Knowledge of hardware and software components of mobile networks and phones, mobile platforms, market overview and finally a practical approach knowledge is acquired. The hands-on approach includes the use of Java-based applications, the use of sensors, user interface design, and programming and how to test applications in an emulator and finally how to release Android applications to the market. The workshops deal with the development of locally oriented mobile applications and the development of applications for basic communication of a mobile device with a remote server and with remote databases through communication with real servers. The basics of cross-platform programming and the basics of simultaneous Android and iOS application development are also covered.
Competences/educational outcomes:	The student will be able to: • understands the architecture of the mobile network • understands the basic concepts of mobile computing • describe basic and modern mobile services, including M2M and IoT, pervasive computing concept, and LBS services • installs, configures and uses the Android Studio development environment and the Android emulator

	• creates user interfaces, using XML and graphical tools
	• develops, executes and tests basic Android applications
	• describes how an Android application is published
	• develops basic applications that communicate with a remote server and database
	• develops basic Flutter programs for iOS and Android applications
Mastered skills:	Students will be able to understand the components and elements of modern mobile voice and data networks, to understand the impact of the growth of data transmission, to explain the functioning of new services based on communication of machines, on location and on the Internet of Things, to understand the specifics of mobile applications, the concept of XML based UI design and Java programming, to use the Android Studio development environment and the Flutter framework, to develop and test basic multiplatform mobile applications that work in the Android and iOS operating systems. Through data processing on a web server, students will get to know the basics of the PHP script language and the JSON representation of resources. Students will master the basics of developing mobile applications that communicate with remote servers and remote databases.
Course content:	I: Mobile Computing. Market share representation of users, technologies and devices. II: Mobile devices and basic computing features. III: Mobile networks and technologies IV: Mobile business V: Mobile services: M2M, LBS VI: Mobile platforms VII: Sensor access, use and purpose of different sensors (camera, GPS, Display, gyroscope, accelerometer). Basic mobile application programming. Use of QR code. VIII: Programming mobile applications that use a camera and applications that communicate with a real remote server and with a remote database. IX: Fundamentals of cross-platform programming for Android and iOS using the Flutter framework on Windows and macOS.

METRIKA PREDMETA:

ECTS	Nastavne aktivnosti (čas)						Individualni rad		SVEGA časova rada
	Kontakt časovi		Vježbe treninzi	Seminarski i stud. radovi	Pedagoške radionice	Stručna i klnič. praksa	Individual. i grupno učenje	Istraživ. izvora	
	R	V							
5	20	10	20		24		65	11	**150**

Jezici izvođenja nastave				

PREDUSLOVI ZA PRISTUP PREDMETU

Šifra	Naziv predmeta/modula znanja	Ocjena	Opis uslova (dodatni)
2.09.01.001.	Arhitektura i organizacija računarskih sistema		
2.09.04.001.	Sistemski softver (operativni sistemi)		
1.02.01.02.002.	Napredne računarske mreže		

METODIKA IZVOĐENJA PREDMETA

U toku obrade predmeta predviđena su:

- 30 kontakt-sati interaktivnih predavanja;
- 20 sati za vježbe i treninge;
- 24 Pedagoške radionice
- 65 Individualno i grupno učenje
- 11 sati za istraživanje izvora.

Predavanja se vrše prema utvrđenom rasporedu uz korištenje savremenih prezentacionih i demonstracionih sredstava i tehnika sa primjenom interaktivne metode rada sa studentima čime se stiče uvid u njihova predznanja i specifična iskustva zasnovana na obrađivanoj problematici, ali i uvid u kontinuitet savladavanja gradiva. Za predmet "Mobilno računarstvo" predviđeno je 30 kontakt-sati interaktivne nastave.

Predavanja se izvode korištenjem didaktičkih i edukativnih sadržaja u elektronskoj i digitalnoj formi (koji uključuju i snimljena predavanja i mentorske vježbe) na različitim video-prezentacionim medijima (interaktivni multimedijalnioptički mediji).

Nastava u cjelini se izvodi primjenom informaciono-komunikacionih tehnologija (ICT) koje omogućavaju studentima da kroz kompjuterski podržano učenje i istraživanje (Computer Assisted Learning & Research) ostvare aktivan odnos u procesu sticanja znanja uz pomoć računarske i komunikacione tehnologije.

EVALUACIJA RADA STUDENTA

Red. br.	Vrsta evaluacije	Parcijalna/ konačna	Opciona / obavezna	Procenat učešća
01	Učešće u kontaktnom radu - interakcija na predavanjima	predispitna obaveza	obavezni	10-20 %
02	Seminarski/stručni radovi studenta	predispitna obaveza	obavezni/ opcioni	20-30 %
03	Ispitne aktivnosti – finalni test (problemski test, pisani ispit)	konačni	obavezni/ opcioni	30-50 %

LITERATURA / IZVORI (navedena po redosljedu važnosti)

Autor (Prezime, Ime)	Naziv publikacije	Sjedište izdavača	Izdavač	God. izdanja	Vrsta publk.*
a/ Osnovna literatura					
Đukanović Goran	Mobilno računarstvo			2021	multime dija
b/ Dopunska literatura					
Dawn Griffiths, David Griffiths	*Android programiranje bez oklevanja*	Beograd	CET	2018	knjiga
Rick Boyer, Kyle Merrifield Mew	*ANDROID STUDIO IDE kuvar za razvoj aplikacija*	Beograd	Kompjuter biblioteka	2016	knjiga
Ronan Schwarz, Phil Dutson, James Steele, Nelson To	*Android 4: Izrada aplikacija pomoću paketa Android SDK*	Beograd	Mikro knjiga	2014	knjiga
Nataša Gospić, Igor Tomić, Duško Popović, Dragan Bogojević	*Razvoj mobilnih komunikacija – od GSM do LTE -*	Beograd	Univerzitet u Beograd, Saobraćajni fakultet	2010	udžbenik
c/ Ostali izvori - časopisi,					
Autor – Prezime, Ime (*ukoliko je izvor članak*)	Naziv časopisa	Sjedište izdavača	Izdavač	God. izdanja	Vrsta časopisa

c/ Ostali izvori – WEB					
Naziv sajta		Adresa sajta	Naziv rada/hiperlink	Očitano	
Flutter		https://flutter.dev/		11.05.2021	
Android Developers		https://developer.android.com/		11.05.2021	
(*)Vrsta publikacije (knjiga, skripta, kompendium, multimedija)					